Magma generation processes within Mazury AMCG suite, (NE Poland) evidence from inheritad zircon

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The Mazury AMCG (anorthosite – mangerite – charnockite – granite) suite was emplaced at about 1.53-1.52 Ga along a linear zone of weakness within Late Svecofennian part of East European Craton, which facilitated melting of the lower crust. Previously realized a whole rock isotopic studies of granitic component provided a negative values of ε Nd range from –3.3 to –6.8, with relatively low values of the initial Sr isotope ratio (0.702–0.707). It was pointed out that melting of a crust extracted from the mantle at *ca*. 2.0–2.2 Ga (Duchesne et al. [1] led to generation of the metaluminous, ferroan, potassic and mostly alkali-calcic A-type granitoids with high contents of incompatible elements. Tectono-magmatic activity in this area was complemented by emplacement of pegmatite and aplite veins commonly cutting all components of AMCG. However it was not a synchronic event. Preliminary U-Pb zircon studies of post tectonic aplite in area of Suwalki Anorthosite Massif with Fe-Ti -V deposits indicate crystallization age of 1493 ±7 Ma (Jeleniewo – Krzemianka fields) but pegmatite crystallization occurred later, at 1488.7±4.8 Ma (Udryn field). Moreover most of typical red microgranite veins reveal well preserved inherited zircon cores with dominated population in range from 2019±26 Ma to 1815 ±10 Ma (n=16) and subordinate younger group in range 1774±12 Ma to 1617 ±9 Ma (n=7). (Jeleniewo).
It evidences directly that magma generation processes had to include a melting of the older local Svecofennian crust.

[1] Duchesne J-C. et al. 2010 *The Canadian Mineralogist* Vol. **48**, pp. 947-968
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